Application No.: 10/674,250
Supplemental Amendment dated: 09/15/05
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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application. It is respectfully requested that new claims 29 and 30 be entered.

Listing of Claims:

1. (previously canceled)

2. (previously amended) The method of claim 11 wherein the light hydrocarbon gas is natural gas.

3. (previously canceled)

4. (previously canceled)

5. (previously canceled)

6. (previously canceled)

7. (previously canceled)

8. (previously amended) The method of claim 11 wherein the produced electrical power is placed on the power grid for the light hydrocarbon gas liquefaction process.

9. (previously amended) The method of claim 11 wherein all of the refrigerant compressors are driven by electric motors.

10. (previously canceled)

11. (currently amended) An improved efficiency, reduced carbon dioxide emissions method for providing internally generated electrical power for refrigerant compression and shared electrical power for a light hydrocarbon gas liquefaction process, the method [comprising] consisting essentially of:

a) providing [at least a portion of] the electrical power for the light hydrocarbon gas liquefaction process from at least one electrical generator driven by at least one fossil fuel fired turbine, the turbine fueled by a compressed air stream and a light hydrocarbon gas stream or an energy recovery electrical generator and producing a high-temperature, high-pressure gas stream to power the turbine and discharge a high-temperature exhaust gas stream;

b) passing the high-temperature exhaust gas stream to heat exchange with water or low-pressure steam to produce a higher pressure steam stream;

c) passing the higher pressure steam stream to a steam turbine to drive [an] the energy recovery electrical generator to produce electrical power; and,

d) compressing a low-pressure refrigerant to an increased pressure in at least one refrigerant compressor driven by an electric motor powered by electrical power generated by the at least one electrical generator or the energy recovery electrical generator.

12. (previously canceled)

13. (currently amended) An improved efficiency, reduced carbon dioxide emissions system for providing refrigerant compression and shared electrical power for a light hydrocarbon gas liquefaction process, the system [comprising] consisting essentially of:

a) at least one electrical generator driven by a fossil fuel fired turbine fueled by a compressed air stream and a light hydrocarbon gas stream [and] to provide an electrical power supply for the light hydrocarbon gas liquefaction process;

b) a line for passing the high-temperature exhaust gas stream to heat exchange with water or low-pressure steam to produce a higher pressure steam stream;

c) a line for passing the higher pressure steam stream to at least one steam turbine having a higher pressure steam inlet and a low pressure steam outlet, [which] the steam turbine [is] being used to drive an energy recovery electrical generator to produce additional electrical power for the electrical power supply; and,

d) a low-pressure refrigerant compressor driven by an electrical motor in electrical communication with the electrical power supply for the light hydrocarbon gas liquefaction process and powered by electrical power from the electrical power supply.

14. (original) The system of claim 13 wherein the at least one electrical generator produces substantially all of the electrical power required for the light hydrocarbon liquefaction process.

15. (original) The system of claim 13 wherein the system includes a plurality of electrical generators.

16. (original) The system of claim 13 wherein the system includes a plurality of turbines.

17. (original) The system of claim 13 wherein each fossil fuel fired turbine includes a high-pressure air inlet into a combustion zone from which a high-temperature, high-pressure combustion gas stream is passed to an inlet to the turbine to drive the turbine and produce a high-temperature, low-pressure exhaust gas stream discharged through an exhaust gas outlet from the turbine.

18. (previously canceled)

19. (previously amended) The system of claim 17 wherein the system includes a heat exchanger in fluid communication with the exhaust gas outlet, the heat exchanger including an exhaust gas inlet and an exhaust gas outlet and a water or low-pressure steam inlet and a higher pressure steam outlet.

20. (previously amended) The system of claim 19 wherein the system includes a second electrical generator, operable to produce electrical power for the light hydrocarbon liquefaction process, and driven by a steam turbine having a higher pressure steam inlet and a low-pressure steam outlet.

21. (original) The system of claim 20 wherein the steam turbine includes a reduced temperature steam outlet in fluid communication with the low-pressure steam inlet to the heat exchanger.

22. (previously canceled)

23. (previously canceled)

24. (previously canceled)

25. (previously amended) The method of claim 11 wherein the higher pressure steam stream is at a pressure from about 400 to about 1200 psi.

26. (cancel)

27. (previously added) The system of claim 13 wherein the at least one steam turbine includes a reduced temperature steam outlet in fluid communication with the low-pressure steam inlet to the heat exchanger.

28. (previously added) The system of claim 13 wherein the electrical power generated by the energy recovery electrical generator is in electrical communication with the electrical power supply and combined therewith.

29. (new) An improved efficiency, reduced carbon dioxide emissions method for providing internally generated electric power for refrigerant compression and shared electrical power for a light hydrocarbon gas liquefaction process, the method consisting essentially of:

a) providing at least a portion of electrical power for the refrigerant compression and for the light hydrocarbon gas liquefaction process from at least one electrical generator driven by at least one fossil fuel fired turbine, the turbine being fueled by a compressed air stream and a light hydrocarbon gas stream and producing a high-temperature, high-pressure gas stream to power the turbine and discharge a high-temperature exhaust gas stream;

b) passing the high-temperature exhaust gas stream to heat exchange with water or low-pressure steam to produce a higher pressure steam stream;

c) passing the higher pressure steam stream to a steam turbine to drive at least one energy recovery electrical generator to produce electrical power; and,

d) compressing a low-pressure refrigerant to an increased pressure in at least one refrigerant compressor driven by an electric motor powered by electrical power generated by the at least one electrical generator or the at least one energy recovery electrical generator; all of the required electrical power for the refrigerant compression and shared electrical power for the light hydrocarbon gas liquefaction process being supplied by the at least one electrical generator and the at least one energy recovery generator.

30. (new) An improved efficiency, reduced carbon dioxide emissions system for providing internally generated electric power for refrigerant compression and shared electrical power for a light hydrocarbon gas liquefaction process, the system consisting essentially of:

a) at least one electrical generator driven by a fossil fuel fired turbine fueled by a compressed air stream and a light hydrocarbon gas stream to produce a high temperature exhaust gas stream and operable to provide an electrical power supply for the light hydrocarbon gas liquefaction process;

b) a line for passing the high-temperature exhaust gas stream to heat exchange with water or low-pressure steam to produce a higher pressure steam stream;

c) a line for passing the higher pressure steam stream to at least one steam turbine having a higher pressure steam inlet and a low pressure steam outlet, the steam turbine being used to drive at least one energy recovery electrical generator to produce electrical power; and,

d) a low-pressure refrigerant compressor driven by an electrical motor in electrical communication with the electrical power supply for the light hydrocarbon gas liquefaction process and powered by electrical power from the electrical power supply, the electrical power supply for the refrigerant compressor and light gas liquefaction process consisting of electrical power from the at least one electrical generator and the at least one energy recovery electrical generator.